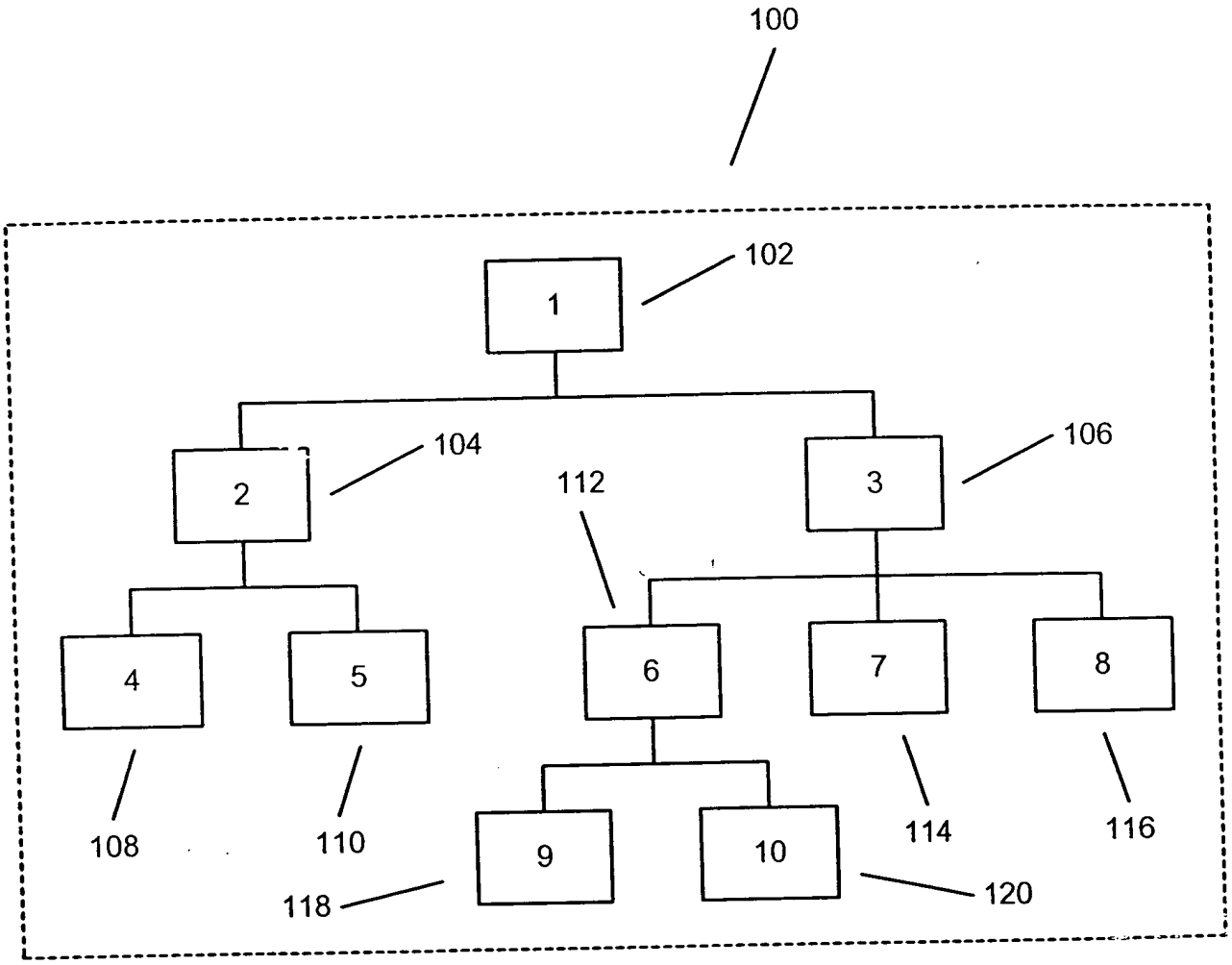
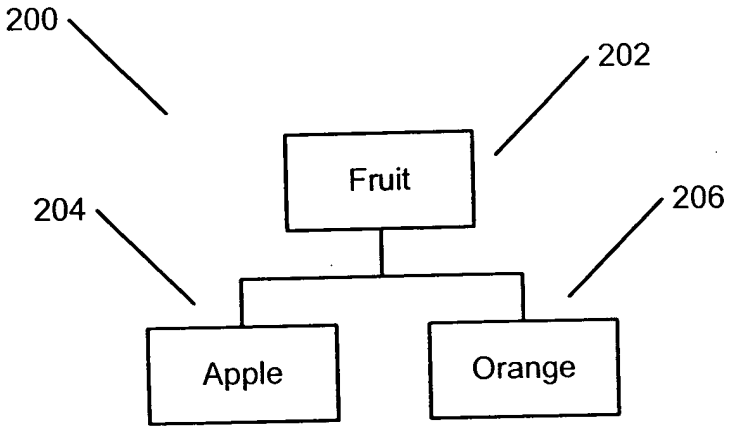



FIG. 1

FIG. 2


200
202
Fruit
204
206
Apple
Orange

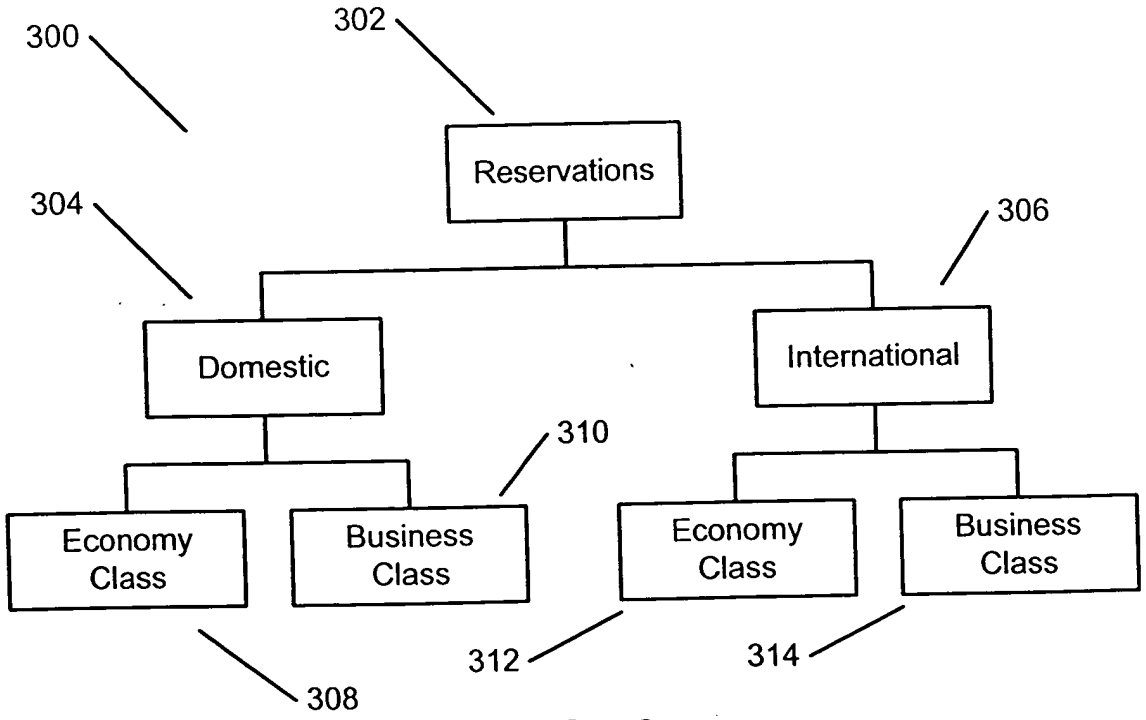

300
302
Reservations
304
306
Domestic
International
310
Economy Class
Business Class
Economy Class
Business Class
312
314
308

FIG. 3

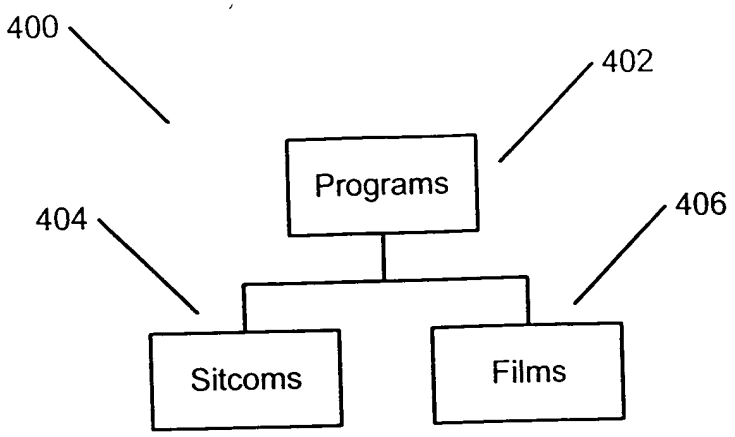

400
402
Programs
404
406
Sitcoms
Films

FIG. 4

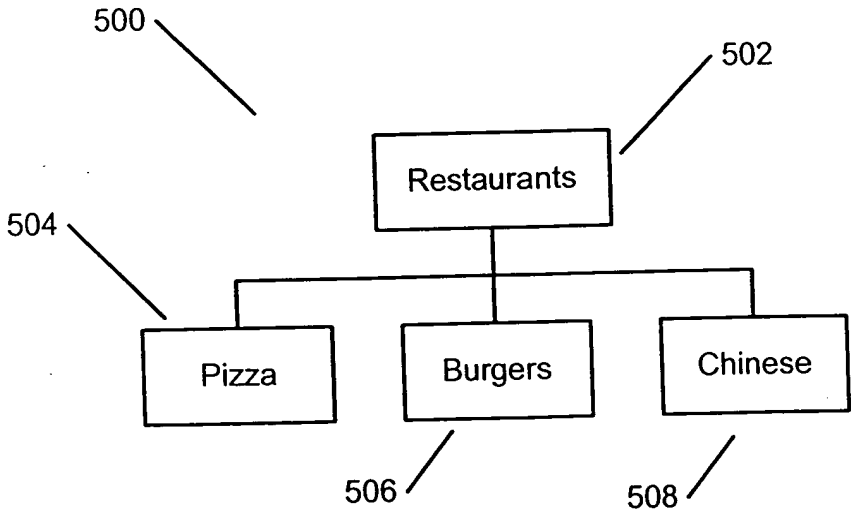

500
502
Restaurants
504
Pizza
Burgers
Chinese
506
508

FIG. 5

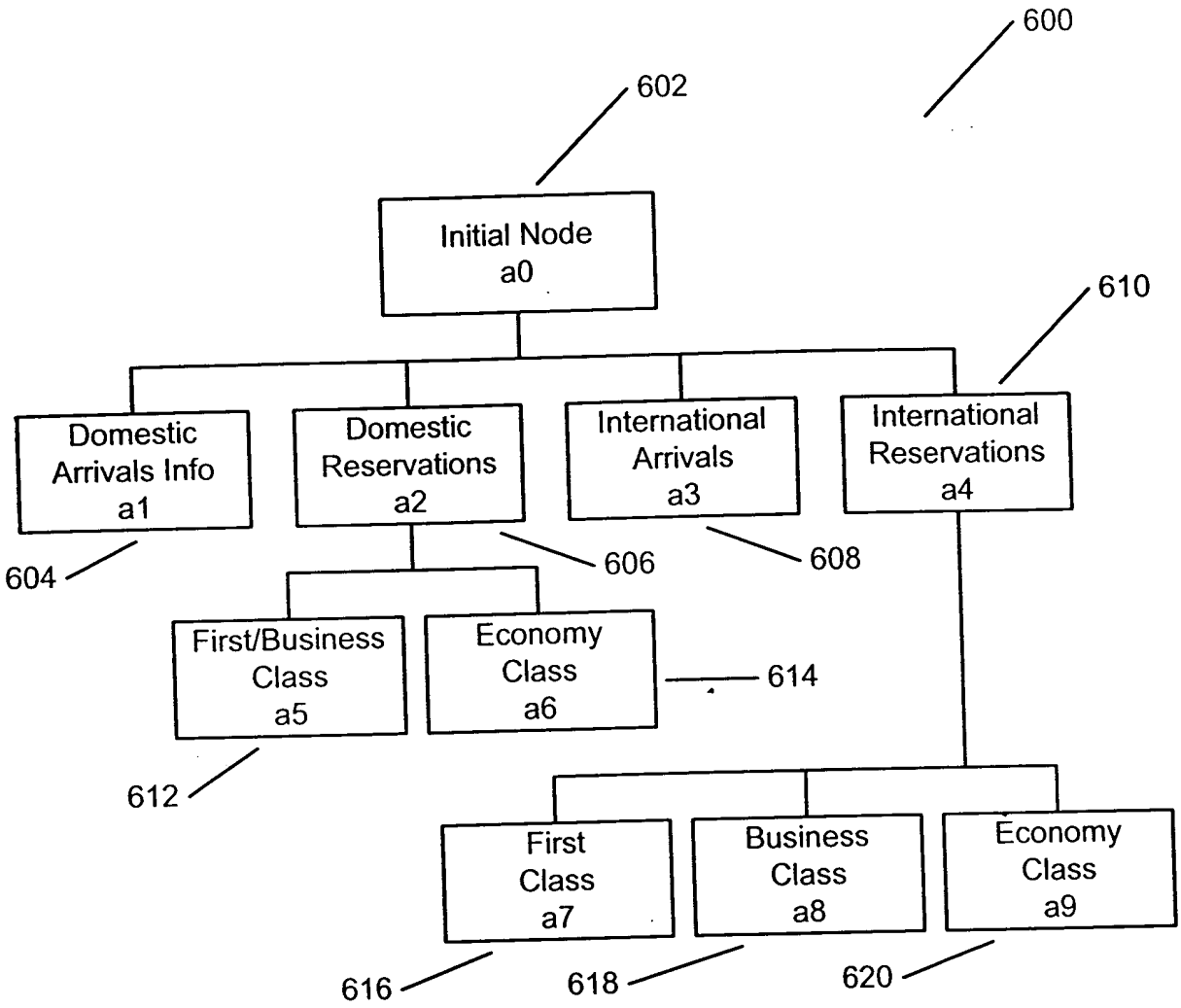

600
602
Initial Node
a0
610
Domestic
Arrivals Info
a1
Domestic
Reservations
a2
International
Arrivals
a3
International
Reservations
a4
604
606
608
First/Business
Class
a5
Economy
Class
a6
614
612
First
Class
a7
Business
Class
a8
Economy
Class
a9
616
618
620

FIG. 6

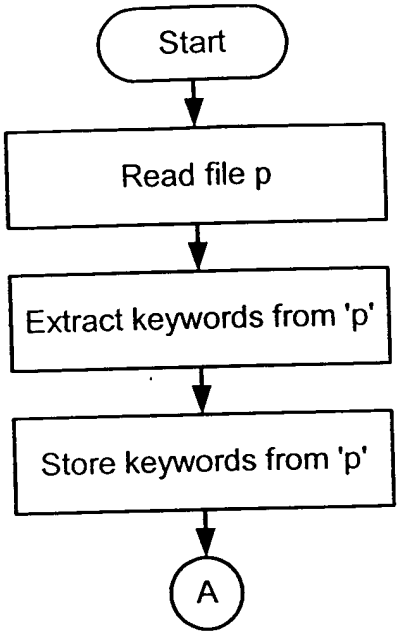



FIG. 7A

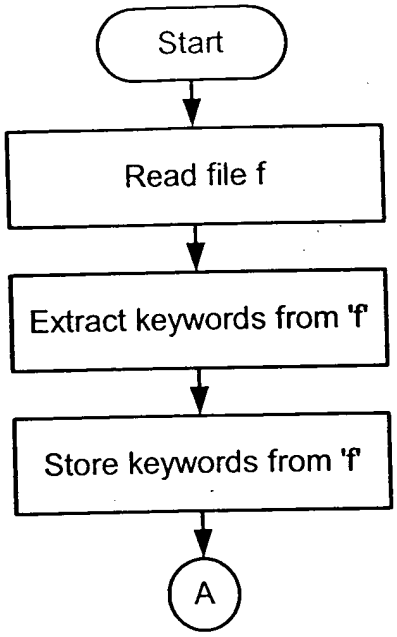



FIG. 7B

FIG. 8

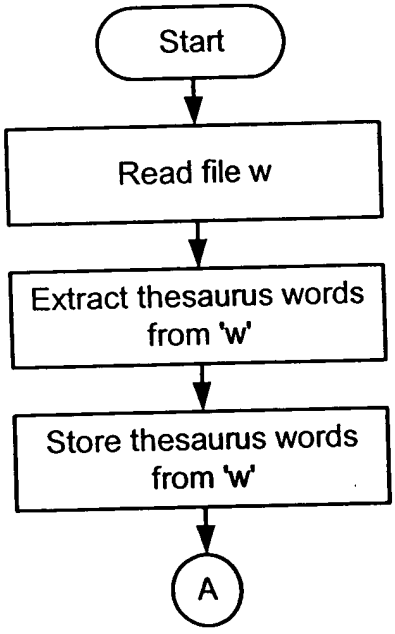


FIG. 9

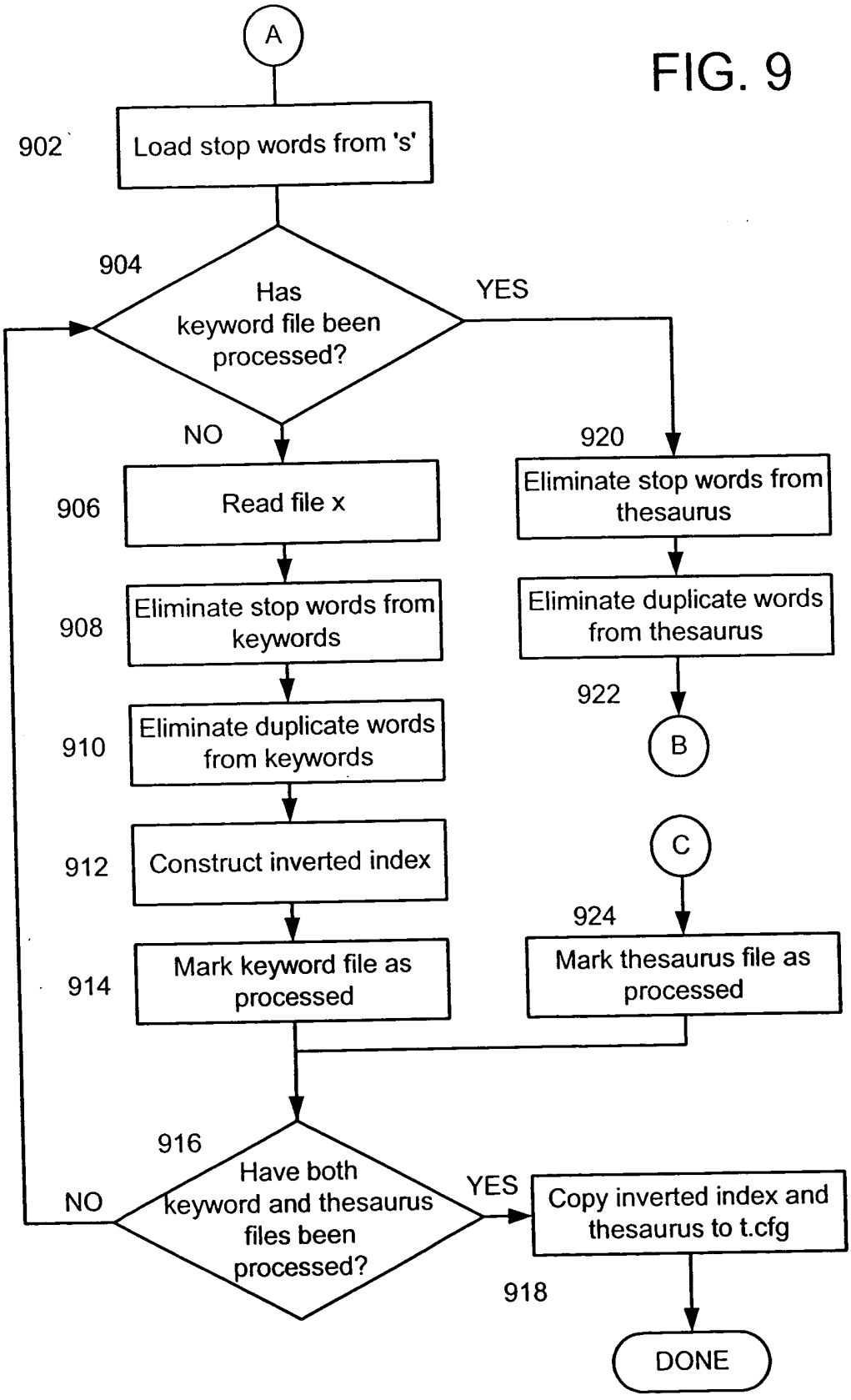

A
902
Load stop words from 's'
904
Has keyword file been processed?
YES
NO
920
Eliminate stop words from thesaurus
906
Read file x
908
Eliminate stop words from keywords
Eliminate duplicate words from thesaurus
922
B
910
Eliminate duplicate words from keywords
C
912
Construct inverted index
924
Mark thesaurus file as processed
914
Mark keyword file as processed
916
Have both keyword and thesaurus files been processed?
NO
YES
Copy inverted index and thesaurus to t.cfg
918
DONE

FIG. 10

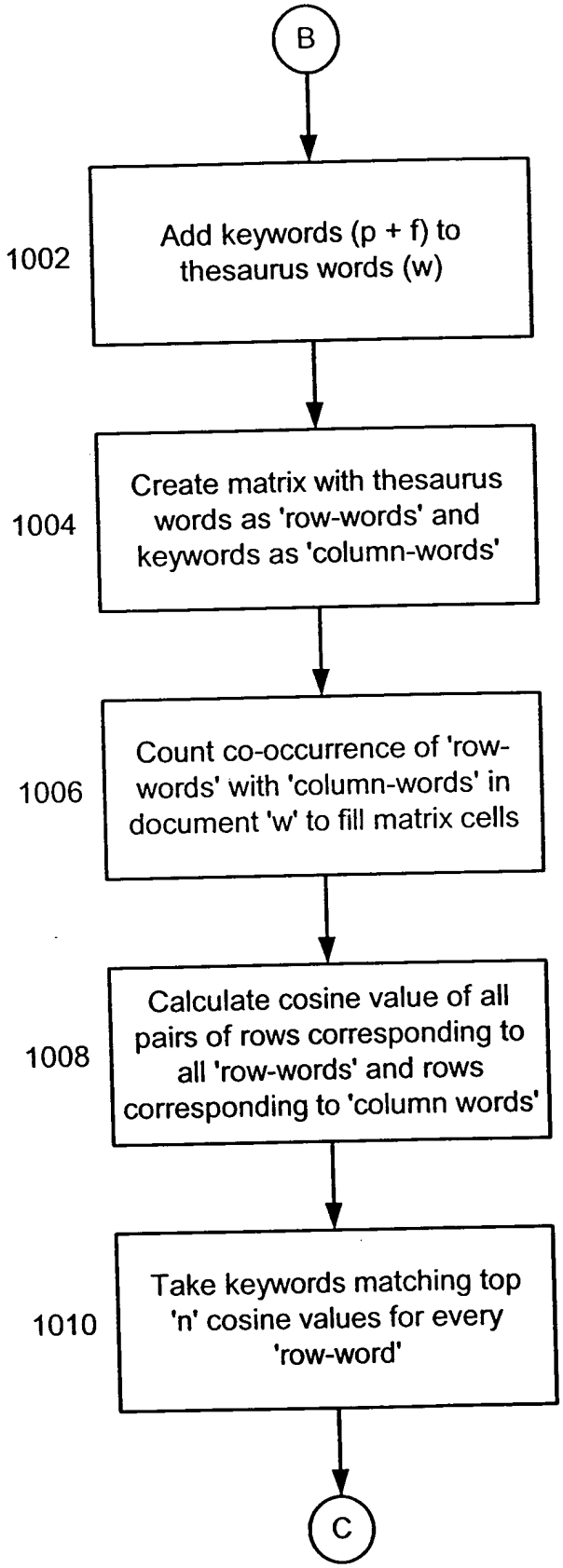
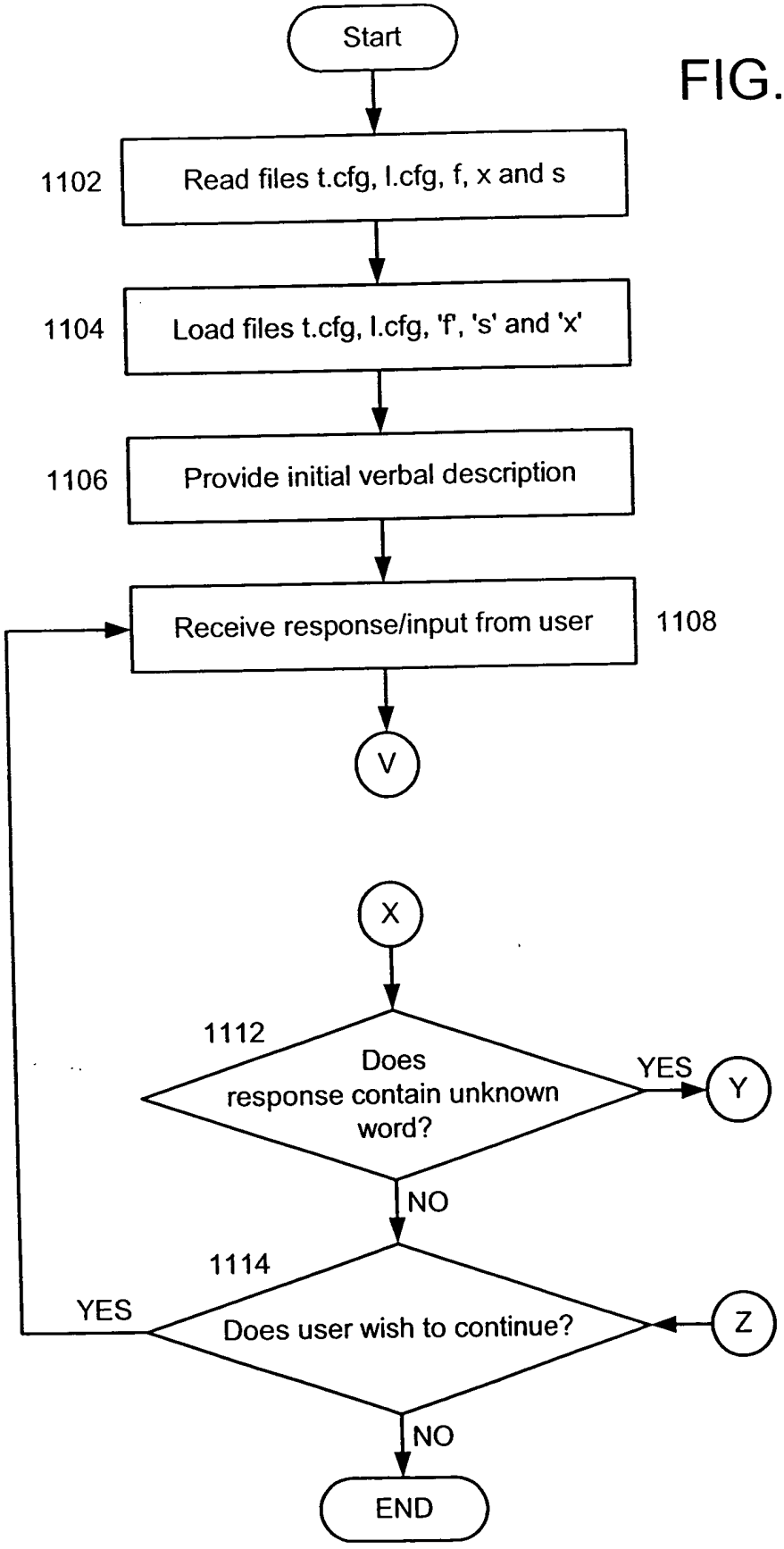

B
1002
Add keywords (p + f) to thesaurus words (w)
1004
Create matrix with thesaurus words as 'row-words' and keywords as 'column-words'
1006
Count co-occurrence of 'row-words' with 'column-words' in document 'w' to fill matrix cells
1008
Calculate cosine value of all pairs of rows corresponding to all 'row-words' and rows corresponding to 'column words'
1010
Take keywords matching top 'n' cosine values for every 'row-word'
C

FIG. 11


Start
1102
Read files t.cfg, l.cfg, f, x and s
1104
Load files t.cfg, l.cfg, 'f', 's' and 'x'
1106
Provide initial verbal description
Receive response/input from user
1108
V
X
1112
Does response contain unknown word?
YES
Y
NO
1114
YES
Does user wish to continue?
Z
NO
END

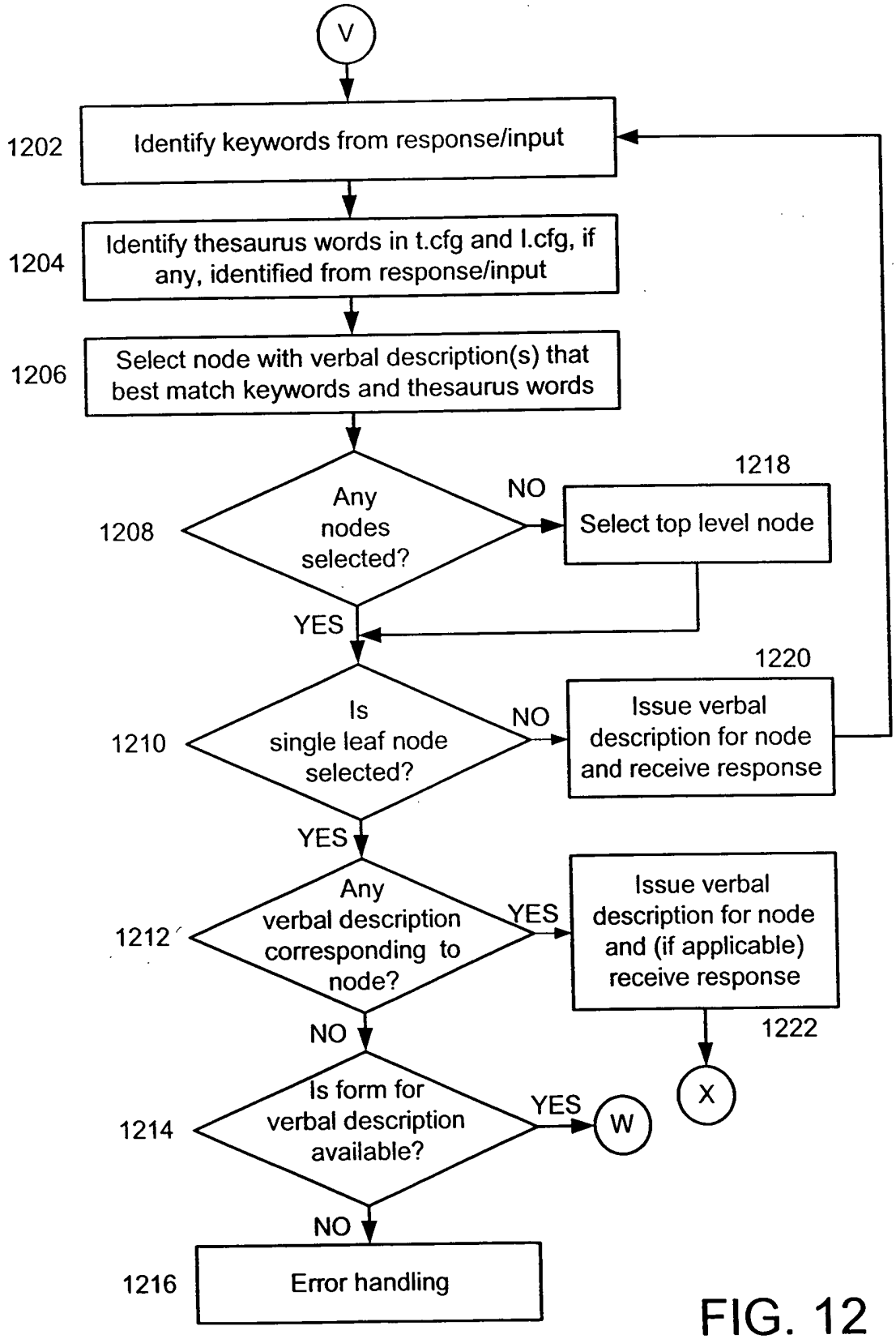

V
1202
Identify keywords from response/input
1204
Identify thesaurus words in t.cfg and l.cfg, if any, identified from response/input
1206
Select node with verbal description(s) that best match keywords and thesaurus words
1208
Any nodes selected?
NO
1218
Select top level node
YES
1210
Is single leaf node selected?
NO
1220
Issue verbal description for node and receive response
YES
1212
Any verbal description corresponding to node?
YES
Issue verbal description for node and (if applicable) receive response
1222
X
NO
1214
Is form for verbal description available?
YES
W
NO
1216
Error handling

FIG. 12

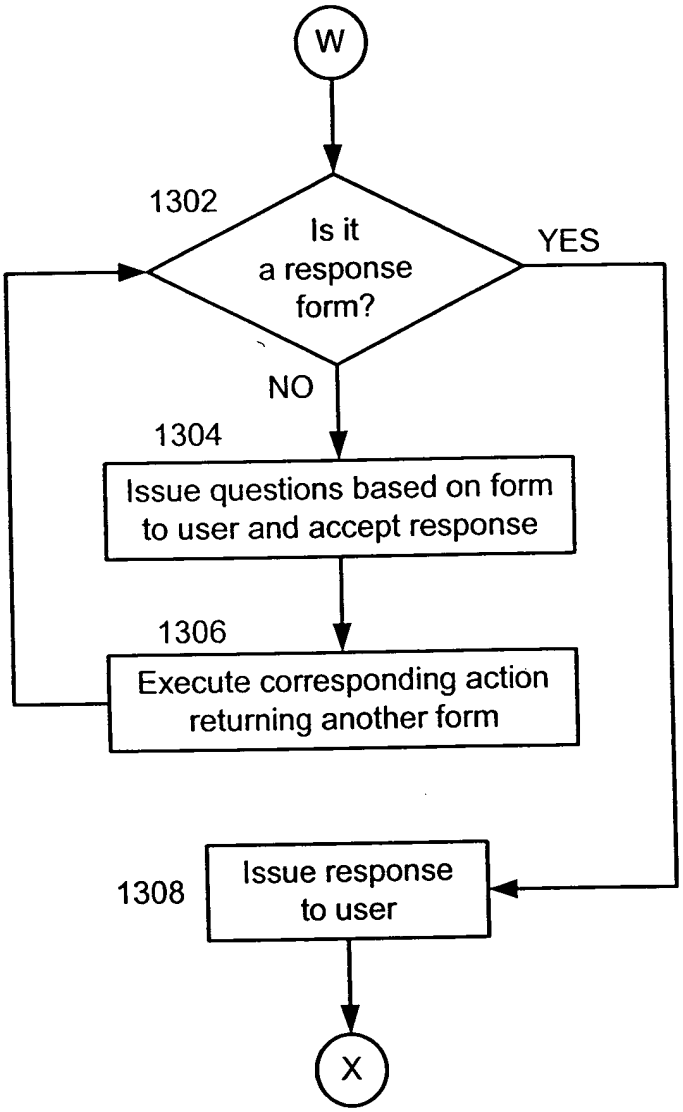

W
1302
Is it a response form?
YES
NO
1304
Issue questions based on form to user and accept response
1306
Execute corresponding action returning another form
1308
Issue response to user
X

FIG. 13

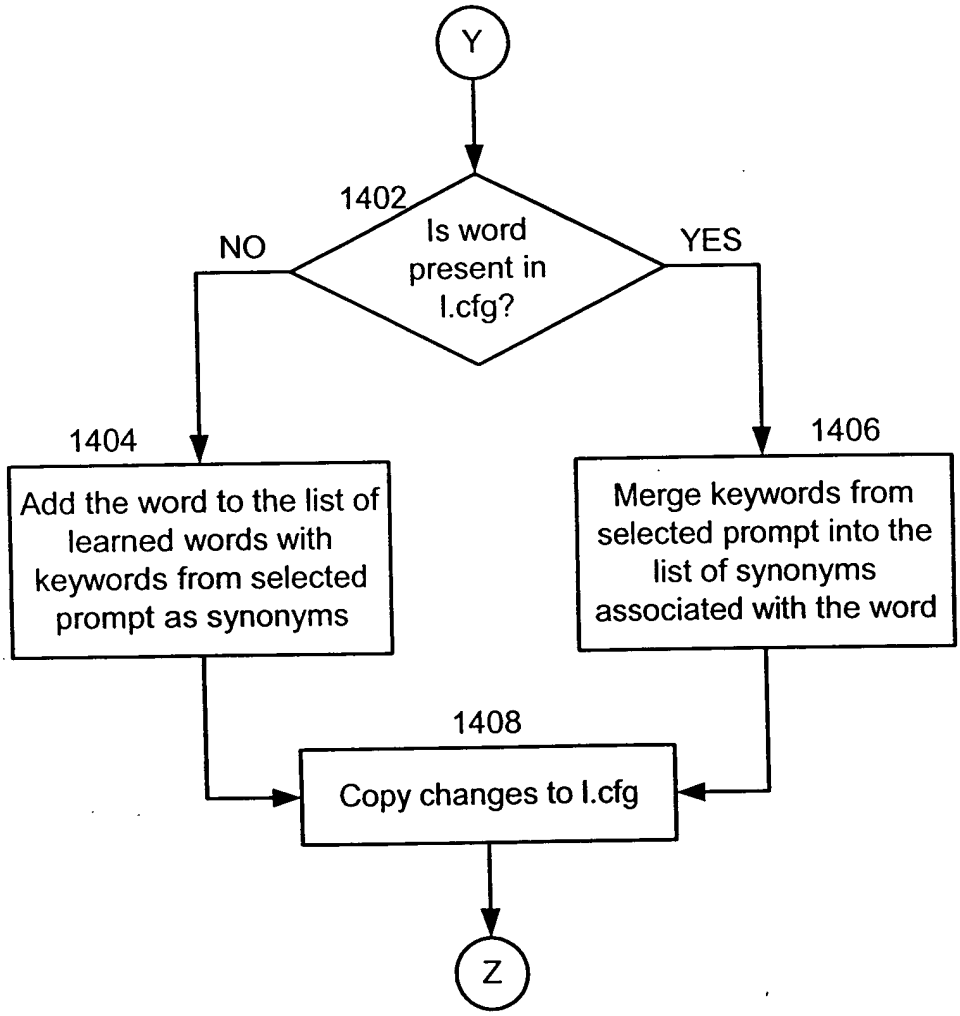

Y
1402
Is word present in l.cfg?
NO
YES
1404
Add the word to the list of learned words with keywords from selected prompt as synonyms
1406
Merge keywords from selected prompt into the list of synonyms associated with the word
1408
Copy changes to l.cfg
Z

FIG. 14